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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,902	04/14/2004	David Harold Goode	IBMP009/SVL920010052US2	7589

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MOLLBORN PATENTS
ATTN: IBM
2840 COLBY DRIVE
BOULDER, CO 80305

EXAMINER

PATEL, NIKETA I

ART UNIT	PAPER NUMBER
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2181

MAIL DATE	DELIVERY MODE
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06/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/824,902

Applicant(s)

GOODE ET AL.

Examiner

Niketa I. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5 is/are rejected.
- 7) ☒ Claim(s) 2,4 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 3/6/2007.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on 03/09/2007. These drawings are accepted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronson et al. U.S. Patent Number: 6,065,088 (hereinafter "*Bronson*") and further in view of Beukema et al. U.S. Patent Number: 6,128,674 (hereinafter "*Beukema*").
4. **Referring to claim 1**, *Bronson* teaches a computer-implemented method for bypassing I/O operations included in a computer [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], the computer having a computer program application that includes ordered computer code, the ordered computer code including I/O access commands, the computer being optimized for support of queued the I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], the method comprising: using asynchronous direct the I/O access commands in the

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application ordered computer code [see column 8, lines 20-22 – queues 136, 134 and figure 3]; identifying the asynchronous direct I/O access commands that are included in the application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue – which indicates that these commands were located before being sent to output queue]; and bypassing the support of queued I/O access commands of the computer by executing the asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and IRR commands (i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.] *Bronson* teaches a use of various I/O devices and I/O access commands to access the devices [see figure 1, element 90] however *Bronson* is silent regarding the I/O access commands being disk I/O access commands. *Beukema* teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the system of *Bronson* to include disk I/O devices in order to provide user with means for storing data. It is for this reason that one of ordinary skill in the art would have been motivated to implement teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

5. **Referring to claim 3**, *Bronson* teaches computer system for bypassing I/O operations included in the computer system [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR

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commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], the computer system having a computer program application that includes ordered computer code, the ordered computer code including I/O access commands, the computer being optimized for support of queued the I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], comprising: the computer system that is designed to optimize queued the I/O access commands [see column 8, lines 20-22 – queues 136, 134 and figure 3]; the asynchronous direct I/O access commands that are included in the application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue]; wherein the support of queued I/O access commands of the computer that is bypassed by executing the asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and IRR commands (i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.] *Bronson* teaches a use of various I/O devices and I/O access commands to access the devices [see figure 1, element 90] however *Bronson* is silent regarding the I/O access commands being disk I/O access commands. *Beukema* teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the system of *Bronson* to include disk I/O devices in order to provide user with means for storing data. It is for this reason that one of ordinary skill in

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the art would have been motivated to implement teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

6. **Referring to claim 5**, *Bronson* teaches a computer program product, comprising a computer useable medium including a computer readable program for bypassing I/O operations included in the computer [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], the computer having a computer program application that includes ordered computer code, the ordered computer code including I/O access commands, the computer being optimized for support of queued the I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], wherein the computer readable medium when executed on the computer causes the computer to: optimize queued the I/O access commands [see column 8, lines 20-22 – queues 136, 134 and figure 3]; uses asynchronous direct the I/O access commands in the application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue]; identify the asynchronous direct I/O access commands that are included in the application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue – which indicates that these commands were located before being sent to output queue]; and bypasses the support of queued I/O access commands of the computer by executing the asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and

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IRR commands (i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.] *Bronson* teaches a use of various I/O devices and I/O access commands to access the devices [see figure 1, element 90] however *Bronson* is silent regarding the I/O access commands being disk I/O access commands. *Beukema* teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

One of ordinary skill in the art at the time of applicant's invention would have clearly recognized that it is quite advantageous for the system of *Bronson* to include disk I/O devices in order to provide user with means for storing data. It is for this reason that one of ordinary skill in the art would have been motivated to implement teaches disk I/O devices and disk I/O access commands being used in MMIO environment in order to provide user with means for storing data.

Allowable Subject Matter

7. Claims 2, 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record taken alone and/or in combination with other does not teach and/or suggest the limitation of bypassing the support of queued disk I/O access commands of the computer when

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porting the computer program application from the operating system to a different operating system.

Response to Arguments

9. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37.CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

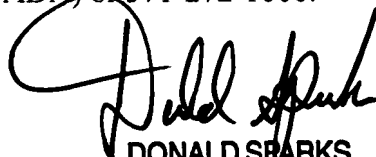
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (571) 272 4156. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272 4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NP
06/10/2007


DONALD SPARKS
SUPERVISORY PATENT EXAMINER